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THE
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☞See Advertisement on last page.

POETRY.

TRY TO BE HONEST AND HAPPY.

BY G. LINNAEUS BANKS.

There's much in the world that is doubtful,
  There's much we shall ne'er understand—
Why *Virtue* should live in a *Poor-house*,
  And *Vice* on the fat of the land.
For those who are fretful and peevish,
  This duty remains to fulfil;
But try to be honest and happy,
  And let the world do as it will.

The poor wretch who walks upon crutches,
  May often be envied far more
Than he who in splendid apparel
  Can shut on the beggar his door;
He cares not for claret and sherry;
  Of luxuries he has not his fill—
Yet dares to be honest and happy,
  And let's the world do as it will.

He boasts no lordly possessions,
  No livery at table to wait;
He maketh no hollow professions
  To cheat his friend sooner or late;
He ruins no hard-working tradesman,
  Who gets but a curse for his bill;
But tries to be honest and happy,
  And let's the world do as it will.

Oh, who then would grumble at fortune,
  Though sorrow and toiling betide?
The man who with wealth is a villain,
  Might be virtuous were it denied!
Too much may overburden and sink you,
  Too little oft kept you from ill;
Then try to be honest and happy,
  And let the world do as it will.

The man who with plenty is honest,
  Hath little to ask for his name;
But he who, though humble, is upright,
  Shall live in the annals of fame.
The vicious may mock at his mem'ry,
  But ages will think on him still,—
Then strive to be honest and happy,
  And let the world do as it will.

THE TEMPER.

"There's not a cheaper thing on earth,
  Nor yet one half so dear;
'Tis worth more than distinguished birth,
  Or thousands gained a year.
It lends the day a new delight:
  'Tis virtue's foremost shield,
And adds more beauty to the night
  Than all the stars may yield.

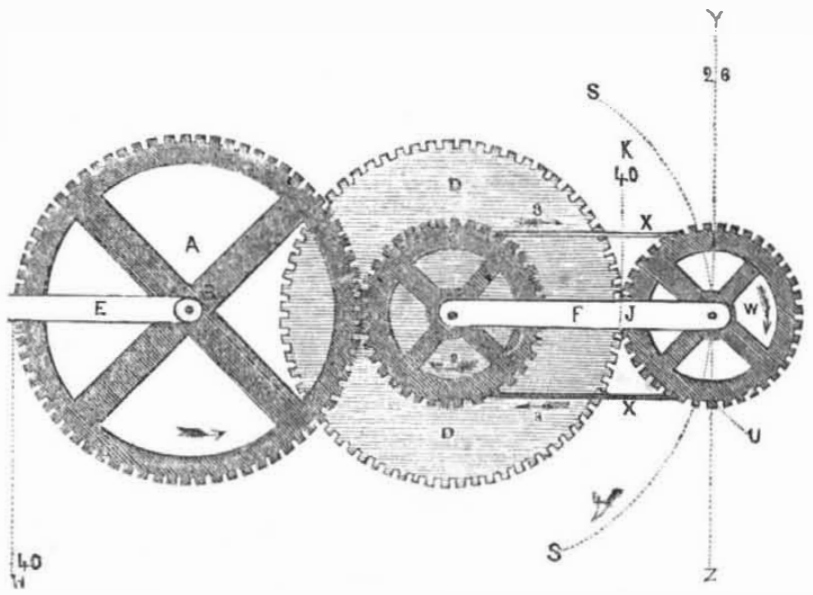
"What may this wondrous spirit be,
  With power unheard before—
This charm, this bright divinity?
  Good temper—nothing more.
Good temper! 'tis the choicest gift
  That woman homeward brings,
And can the poorest peasant lift
  To bliss unknown to kings."

Oh Dear!

A fashionable young gentleman, who has been in Paris, fainted away, last week, at Saratoga, on hearing that his brother had been seen in new York at an unfashionable period.

A despairing swain, in a fit of desperation recently declared to his unrelenting lady, that it was his full determination to drown himself or perish in the attempt!

WATTS' ATMOSPHERIC ENGINE.



Atmospheric pressure is now engaging much attention. It is proposed, we perceive, to construct a railroad in the island of Ceylon, in the East Indies, upon Clarke and Varley's system, the same as adopted in England. M. Andraud of Paris, has also effected, it is said, an improved method of railway travelling by means of compressed air, and we have lately seen it recommended through the columns of the London Mining Journal, to adopt atmospheric pressure for mining purposes. We think that where fuel is cheap no advantage can be gained by an atmospheric pressure engine, but we would call attention to this subject, well knowing that a great saving is yet to be effected in the economy of propelling machines. Mr. B. Watts, of New Bedford, Mass. the inventor of the engine represented in the above engraving, has been devoting himself assiduously to the subject and is daily discovering some new improvement, which cannot fail yet to be a general benefit.

Let A represent a wheel 12 inches in diameter, having a stationary axis passing through the centre B, round which it revolves. Let C represent another wheel, 6 inches in diameter, having also a stationary axis, round which it revolves. D, is a stationary plate of metal in the form of a circle, and an inch in thickness. Its dimensions correspond exactly with those of the wheel A, viz. same diameter and circumference. It is placed parallel with the wheel C, and the axis of the wheel C passes through the centre of it. E and F, are two levers, on which the two frames are applied, the fulcrum of E being at the centre of wheel A, and the fulcrum of F being at the centre of wheel C. The length of lever E is equal to the radius of wheel A—6 inches. This axis of wheel C, passes through the extremity of lever F, and the other extremity supports the axis of wheel I. The wheel I, is of the same dimensions as wheel C, therefore the circumference of wheel I, and the circumference of the plate, coming together, it is easy to calculate the length of lever F. The radius of plate D, is 6 inches, radius of wheel I, is 3 inches, whole 9 inches, length of lever F. Let a power of 40 pounds be applied to the extremity of lever E, in the direction of H, and the other power (having two as first stated,) be applied on lever F, in the direction of K. The point J, on the lever being 9 inches from the centre, would be the place to apply the power, as two equal powers to produce the same result, must act on levers of equal length.—The circumference of wheel I is brought close to the edge of the plate; on its circumference are friction teeth, so that whatever part comes in contact with the plate, it must hold on, and a power acting so as to turn wheel I in the direction of arrows W, would cause it to move round on the circumference of the plate in direction of arrows 4. The extremity of the lever, corresponding with the centre of wheel, would describe an imaginary circle S. The circumference of wheel I, must always touch the edge of the plate, as its centre is always kept at the same distance from the centre of wheel C, by the lever F. Attached to wheels I and C, are two drums, of the same diameter as the wheels, over which passes the band X. Having described the machine, and applied the powers, we will now show how the power of 40 pounds on lever E, is made to overcome the 40 on lever F. The lever E, is fastened to wheel A, consequently when the lever revolves, the wheel revolves also. At every revolution of A, (in direction of arrows 1,) the wheel C evidently revolves twice, caused either by friction of the circumferences, or cogs, in direction of arrows 2, and at every revolution of C, J revolves, by means of the band, in direction of arrows W, with the same force, 40 pounds. It is easy to perceive that a force of 40 pounds is exerted on the extremity of lever F, in the direction of Z, for as the point of the circumference of wheel I, in contact with the circumference of plate, as at J, holds on, that point evidently becomes a fulcrum of a lever, the power of which acts on the point U, in direction of arrows 3. So the power of 40 pounds acting on a lever of 6 inches, is transferred to a lever of 9 inches. At one revolution of wheel A, wheel I makes two revolutions, and consequently moves entirely round the plate, being just one half the circumference of the plate. The 40 pounds applied at J, acts, by the law of the lever, at the centre of I, in the direction of Y, with a force of only about 26 pounds, consequently we have a power of 14 pounds, minus friction, acting on a lever of 9 inches. It will be observed that the power always acts in a direction parallel with lever F, and that the fulcrum, the point J, as things now stand, is always in the same relative position, and that the weight always acts as the center of I, perpendicular to the power.

The above, the inventor says, may be modified in a hundred different ways, but he has taken it because easier illuitrated. He has used pressure of atmosphere for power, which acts equally in all directions, hence the necessity of two powers, acting oppositely. The powers are applied to the machine in a simple manner.

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Sept. 11th, 1847.

To M. W Obenchain, of Springfield, Ohio, for improvement in machinery for Spinning. Patented Sept. 11, 1847.

To Charles J. Woolson, of Springfield, Ohio, for improvement in hanging carriage bodies.—Patented Sept. 11, 1847. Ante-dated March 11, 1847.

To Ziba Parkhurst, of New York, for improvement in Burring machines. Patented Sept. 11, 1847.

To John Donlevy, of New York, for improvement in Lithographic Presses. Patented Sept. 11, 1847. Ante-dated March 11, 1847.

To Isaac L. Blanchard, of Weymouth, Mass. for improvement in steering apparatus for vessels. Patented Sept 11, 1847.

To James Brigham, of Philadelphia, Penn., for improvement in catches for clasps. Patented Sept. 11, 1847.

To Moses F. Hoit, of Livingston, Alabama, for improvement in Fountain Pens. Patented Sept. 11, 1847.

To John O. Kelsey, of Newburyport, Mass. for improvement in the construction of chimneys. Patented Sept. 11, 1847.

To Philip Zeiber, Patrick S. Devlan, of Reading, and John Hancock, of Philadelphia, Penn. for improvements in combinations for lubricating machinery. Patented Sept. 11, 1847.

To Jacob Benner, of Liberty, Penn., for improvement in Smut machines. Patented Sept. 11, 1847..

To Moses Spofford, of Georgetown, Mass., for improvement in machines for hoeing land. Patented Sept. 11, 1847.

To John M. Stafford, of Pike, New York, for improvement in Horse Rakes. Patented Sept. 11, 1847.

To James Warren, Jr. of New York, for improvement in preparing materials for lemonade. Patented Sept. 11, 1847.

DESIGNS.

To Roswell Bush, of Rochester, New York, for Design for Stove. Patented Sept 11, 1847.

To James H. Conklin, of Peekskill, New York, for Design for Stoves. Patented Sept. 11, 1847.

To William Gale and Nathaniel Hayden, of New York, for two designs for Spoons, Forks, &c. Patented Sept. 11, 1847.

To Ezra Ripley, of Troy, New York, for design for Stoves, (having assigned his right to Johnson & Cox, Troy, N. Y.) Patented Sept. 11, 1847.

To George W. Wight, of New York, for design for printing on Woolens. Patented Sept. 11, 1847.

INVENTORS' CLAIMS.

Piano Forte.

Invented by Timothy Gilbert, of Boston, Mass. Patented 7th August, 1847. What he claims as his invention is the combination of the spring with the lever and the hammer in such manner as to nearly or entirely remove the weight of them, or either of them from the key lever, or top of the jack thereof, whereby he is enabled to operate or depress the front end of the key lever, with scarcely any counteracting force other than what may be sufficient to dampen the string, and by so doing make the action both very light to the touch and powerful in execution. He also claims the combination of the lever, with the back catch and key lever, for the purpose of enabling the key lever and jack to be readily removed independently of the rest of the action. He also claims the combination or arrangement of the spring with the lever, damper lever, and key lever, by which the spring is made to answer the double purpose of causing the return of the key lever and damper after each blow on the string.

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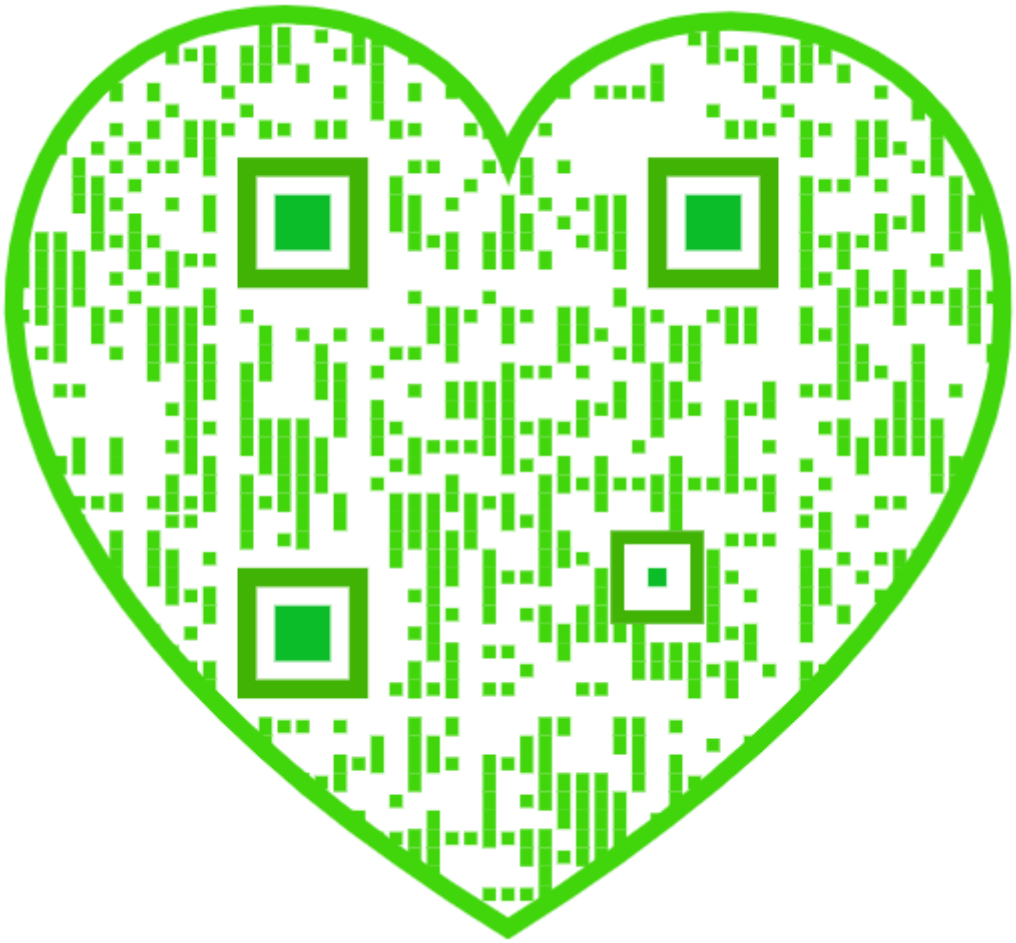
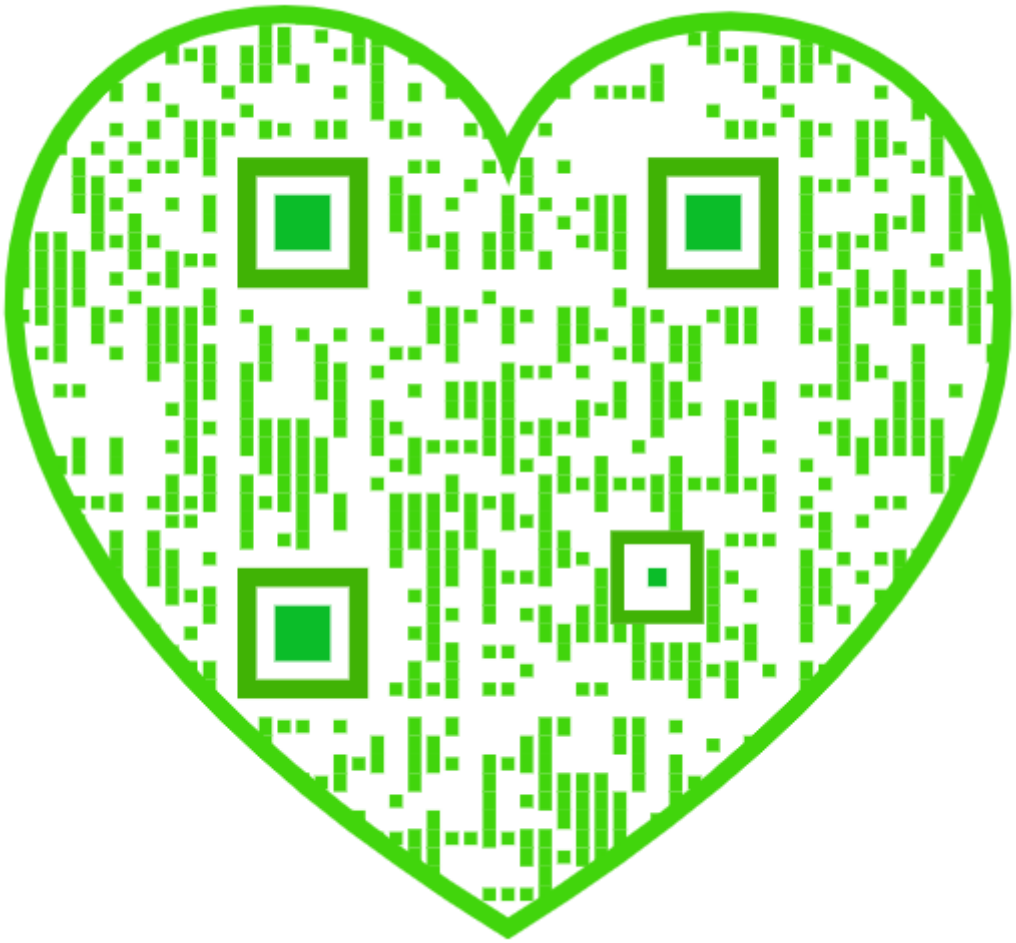




A Model Emigrant Ship.

Every one will concur with us, that most, if not all the dreadful diseases introduced and spread by the many emigrants so constantly pouring into our country, have their origin from the filthiness of accommodations on shipboard. To this may be attributed the introduction of ship-fever, and other contagious diseases which have recently made such fearful ravages. The true preventive is *cleanliness* and we are glad to record an illustration, which we hope will he remembered by every captain and owner. The ship Emma Watts, S Watts, Jr. commander, arrived here on the 6th instant, 41 days from Liverpool, she brought one hundred and sixty-five emigrants, without having a single case of sickness on board, which can only be attributed to the fact that the passengers and vessel were *kept clean*. On leaving Liverpool, Capt Watts constructed a large bath on deck, in which he compelled both men women and children, to clean themselves every day. Their quarters between deck were likewise scrubbed and washed every morning before fires were lighted and then chloride of lime was poured into the crevices, vinegar steamed, and alum put into their drinking water, ventilation, and other precautions used to prevent sickness. The result of these precautions, so vigorously enforced, was, that not a single case of sickness occurred. The health officer at quarantine pronounced them the finest looking passengers he had seen, and the ship was allowed to come immediately up to the city with scarce an hour's detention. We cannot too highly admire the humane and resolute conduct of Capt. Watts in the command of his vessel; he has unquestionably saved a number of lives and prevented much misery, besides setting a noble example for others to follow.

General Manufacturing Law.

A public meeting was held at Rochester on Friday evening last, at which measures were discussed and resolutions adopted to secure the passage of a liberal law in relation to a general manufacturing law. A bill of this kind was brought into the Assembly last winter by William Macfarlane, of Orange county.

Several meetings of mechanics and working people have been held in this city in relation to this subject, and the universal resolution is to support such a bill if it contains the ten hour clause.

Lake Superior Copper.

The Pittsburg and Boston Company has now at the Saut Ste. Marie 100 tons of native copper, and together with what is in progress of shipment will make 334 tons shipped this season. The poorest portion of this copper yields about 65 per cent of copper, and it is said that there are both silver and gold combined with it.

Clerical Compensation.

Dr. Hawks, formerly of St. Thomas church in this city, now pastor of a church in New Orleans at a salary of $6000 per annum, has recently been elected to the Presidency of the Louisiana University, which yields him $4000 more, making his income $10,000 per annum. And the Rev. Mr. Huntington, of Boston, has received a call from the Rev. Dr. Dewey's Society, of this city, at a salary of $7000 per annum.

Sectional Dock Lost.

The large floating sections for a Sectional Dock at Detroit, Michigan, were abandoned a short time since in heavy weather on the lake, while being towed from Buffalo to their destination. They were built by Edward Pierson, Esq. of New York, (at a cost of $15,000,) and upon whom, it is said, the loss will fall.

Mexican Silver.

One ton of silver bullion was stored in a St. Louis warehouse recently. It belongs to Santa Fe traders, is on its way to Philadelphia to be converted into legal currency.

Western Correspondence.—Steamboat and Ship Building in Michigan.

ST. CLAIR, Sept. 2, 1847.

We must try and give you some idea of what we are about in the western world. We are building a steamer of 1700 tons burthen, for Captain Walker, of the steamer Great Western. She is to be named after the great poet, Shakspeare. Her length is 309 feet, 37 feet beam, 15 feet depth of hold. Her engines are to be of superior size, with a cylinder on each gunwale, working at quarter angles. She will be ready for running next Spring, and is the largest boat ever built to run on inland waters. We are also building one for Mr. John Robinson, of Detroit, of mammoth size, being 240 feet long, 36 feet beam, 14 feet depth of hold, in place of the steamer Boston, which was lost near Milwaukie last fall. Also a brig of 299 tons—these being only the work we are carrying on, to say nothing of what is doing at Munroe, Toledo, Sandusky, Cleveland, and Buffalo. Business has never been so good in the ship building line as it is at present, since our removal from the great city of Gotham, some fifteen years ago.

Yours, &c. B. GOODSELL & SON,
Shipwrights, Detroit, Michigan.

An Honest Face.

We love to look upon a frank, open, honest face, in this world of brass and impudence, of sneering, scornful, haughty, and self important looks—how grateful to the heart, is an honest, pleasant smiling face. In the midst of fears, of perplexities, of sorrows, we feel we have one whom we can trust—in whose words we can confide, and whose actions will never give us pain. We are sometimes insulted, sometimes harshly treated—but in beholding such a face we are calm and reconciled—justice will be done us, though we should not open our lips. Heaven multiply such faces—true indexes of generous feelings and christian hearts. The possessors of such must be renewed, regenerated and sanctified by a power above the earth.

Decrease of Nobility.

Sixty years ago, according to a work lately published in Paris, the nobility of Europe numbered five and a half millions; being one in every thirty inhabitants. It now comprises but three millions and three quarters; or one in fifty-seven inhabitants.

The Explosion at Stamford.

Four men were killed outright by the explosion of the boiler last week in Sanford's logwood mill at Stamford, Ct. These unfortunate men did not belong to the establishment, but were employed at their several trades on the outside of the building. Of the hundreds of persons employed in the mills, not one was injured.

On examining the wreck, an extra weight was found to be attached to the safety-valve; and although the person in charge of the engine denies having put it there, yet the circumstance of its being so found affords a fearful commentary on the whole transaction.

Gigantic Plank Road Project.

A company has been formed at Utica, and the stock subscribed, to construct a plank road from that city to Watertown or Sackett's Harbor, in Jefferson county. This road, when constructed, will pass through one of the heaviest and most valuable lumber districts in the State, and open rapid and easy facilities of communication through a section of the State that has heretofore been almost entirely passed by and neglected.

Not in Haste.

A clergyman in the north, very homely in his address, chose for his text a passage in the Psalms—"I said in my haste all men are liars." "Ay," premised his reverence by way of introduction, "ye said it in your haste, David, did ye? gen ye had been here, ye might hae said it at your leisure, my man."

Receipe for England's Troubles.

Take all blood, royal and noble, and all such folks as are made of porcelain clay, instead of common clay like the rest of us, and put them on board some of their best ships of war, (no guns) well stocked with provisions, and tell them to go where they like, but never come back to England; confiscate their land, sell it out in lots to suit purchasers, and with the proceeds pay the national debt.

An Eagle Caught.

A very large Eagle was caught at Headley, Mass., on the 1st. inst., in a bear trap. The powerful bird was taken alive without the fracture of a bone. His wings distended measure 7 feet. Mr. Nash had lost a sheep the day previous, and supposing that some dog was the murderer set his trap for him.

Magnetic Telegraph.

Mr. Henry O'Rerly has offered a premium of $300 for the best Essay on "Electric discovery, with reference to the Telegraphic System." His object is to determine how far the patent held by Professor Morse precludes improvements in the system.

State Credit.

In Maine, on Monday last, the people were to decide upon an alteration of the constitution to prohibit the State loaning her credit to corporations and running in debt to an amount over $300,000

New Telegraph.

The corn robbers in France have been detected in the use of a night telegraph by lamps from church tower to church tower, between Paris and Lyons. The sacristans of several churches have been arrested in consequence by the police.

Reduction of Taxes.

Sir Robert Peel has stated that within the past six years, taxes had been reduced in England to the amount of eight million pounds sterling, yet there had been an increase in the income of more than a million pounds.

For the Ladies.

"Young women," said the Rev. Dr. Beecher, "whenever you see a young man nibbling at cloves or nutmegs, on entering a church, you may safely say, that man has just taken a drink."

The Boston Post reports the doings of the "Society for the prevention of cruelty to Piano Fortes." A branch of the society will find a wide field for the exercise of their benevolent labors in this city.

An attempt has been made to establish woolen factories in the Sandwich Islands; and some blankets of very good quality are said to have been produced.

The easiest way to get a living is to sit on a gate and wait for good luck. In case good luck don't come along, you are no worse off than you were before.

A young married lady named Lord in coming out of the Stark Mills, at Manchester, N H., on Friday, was run over by the cars and killed. She belonged to New York and was on a visit to friends in Manchester.

It is said that the Syracuse Railroad promptly paid $700 to the passengers whose baggage was burnt on the cars, the other night. One passenger is said to claim several thousand dollars for bills burned in his trunk.

Mrs. Farwell of Cambridge recently deceased left all her property, about $30,000 to the Baptist Board of Missions, and the Newton Theological Seminary. It is estimated that she and her husband, also deceased, gave $100,000 to benevolent objects during their lives.

The Cunard Line of steamers will hereafter leave at 12 o'clock, M., on their days of sailing, peremptory orders to that effect having been received from the Admiralty.

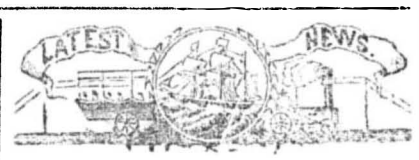
Never pay a printer when he first presents his bills to you, for such an unexpected phenomenon might cause a rush of blood to his head, and throw him into fits.

At the late commencement of the Oberlin Institution, degrees were conferred on six ladies.

A rich Jew in New Orleans, has made his brethren a present of a synagogue—a building formerly occupied as an Episcopal church.

The mail baggage cars on the Albany and Buffalo road, are now being roofed with tin. This will prevent the sparks from having any effect.

In 1807 there was only one flourishing mill in the county of Genesee, New York. There are now in Rochester alone, twenty mills, with upwards of 100 runs of stone.



TWO GREAT BATTLES.

It is currently reported, with every appearance of fact, that two great battles have been fought under the walls of the imperial city of Mexico. The first was fought at a place called Coysacan, and the other at Churubucco.—At Valencia the Americans stormed the strong Mexican entrenchments, capturing 15 pieces of artillery, 1500 prisoners, and leaving 700 of the Mexicans dead on the field. Generals Blenco, Garcia, Mendoza and Salas are among the prisoners. All the camp equipage was taken. At Coysacan, the Mexicans were reported to be 15,000 strong and in a position of uncommon strength; yet they were routed in a conflict of two hours by Gen. Worth's division only 6000 strong. It is said that the young Mexicans of the city, from whom so much was expected, fled like Pompey's cavalry before a small number of veterans. Thirteen Mexican Generals are among the killed and wounded. The New York and South Carolina regiments suffered severely. An armistice has been concluded between the two armies. They are in no way to interfere with each other without 48 hours notice. The City of Mexico is, therefore, not yet possessed by our troops.

The North Carolina Regiment has been guilty of insubordination, and Colonel Payne had shot two of the ringleaders

Broken China.

The New Orleans "National" says that an old lady having read something in the newspapers about the English and French breaking up *China*, sent the following receipt for the benefit of the public:

"To mend broken China, you must put the pieces together carefully, tie them up with a string, and boil them in water strongly diffused in flaxseed."

Bubbles.

Iceland has probably been the scene in past ages, of the most tremendous convulsions of nature. In proof of this, Henderson mentions that in many parts of the Island large bubbles still remain, which formed on the enormous streams of molton lava that flowed from Hecla. Some of these lava bubbles which he saw, were fifteen feet high and were occupied as huts or dwellings by the natives, entrantrances being made by breaking through the crust.

Vegetable Curiosities.

The Editor of the Advertiser, Rochester, says;—We were yesterday shown a limb of an apple tree which had upon it within the space of *seventeen inches*, no less than *sixty-five apples!* They were placed upon the stick like kernels upon a corn cob. Yesterday we saw a cucumber which "beats all." The length is *three feet eleven inches and a fraction*. Also a branch of a peach tree about two feet long, which bore sixty-three peaches!

Scarcity.

There are 100,000 sheep in Addison Co., Vt., which must be driven to other sections to be wintered, or be slaughtered. The deficiency of the crop of hay, and the ravages of grasshoppers have caused a scarcity of food.

A Fine Blue Wash for Walls.

To two gallons of white wash add one pound of blue vitrol dissolved in hot water, and one pound of flour well mixed.

Ahead of Weathersfield.

Mr. John Ashler of Merton, has an onion now growing, which has been in his garden seven years, and has produced seed every year. It is a yard in circumference, and has now twenty-two heads on it.

Sad Accident and Death.

Mr. George A. Jenkins, of Auburn, N. Y., master mason of the Clinton Prison, while directing the hoisting of a stone, a few days ago, was struck down by the falling of the tripod or shears, used for that purpose. He survived the blow, which was upon his head, but a few hours, and died without a return of consciousness.

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THE SONG OF TOIL.

BY AUGUSTINE DUGANNE.

Let him who will rehearse the song
Of gentle love and bright romance—
Let him who will with tripping tongue,
Lead gleaming thoughts to Fancy's dance;
But let me strike mine iron harp
As northern harps were struck of old—
And let its music stern and sharp,
Arouse the free and bold!

My hands that iron harp shall sweep,
Till from each stroke new strains recoil.
And forth the sounding echoes leap,
To join the arousing Song of Toil:
Till men of tho't their thoughts outspeak,
And thoughts awake in kindred mind;
And stirring words shall arm the weak,
And fetters cease to bind!

And crashing, soon, o'er soul and sense,
That glorious harp whose iron strings
Are Labor's mighty instruments,
Shall shake the thrones of mortal kings;
And ring of axe, and anvil note,
And rush of plough through yielding soil,
And laboring engine's vocal throat,
Shall swell the Song of Toil!

Equanimity.

Every one who has read the story of the philosopher who, when his dog Diamond had destroyed the work of years, merely told the quadruped that he didn't know the mischief he had done; which no doubt was true; and perhaps the little rascal knew as much of philosophy as he did of the speech made to him on the occasion. Such instances of equanimity are rare. Probably but one other case has transpired since then, and this was when the cat ran off with Mrs. Partington's steak, which she had just prepared for dinner. When informed of it by her niece, the old lady smiled as she spoke—"That cat always *was* agreeable to my cooking; *some* people's vittles she would'nt touch; we must put ourselves on a regiment to day, Lucy" What a lesson for indulgers in domestic whirlwinds.

Test of Gentility.

A correspondent of the Boston Post writing from Bangor, commences his letter with the following paragraph:

"I shall always consider it the most fortunate circumstance of my life that, on my route eastward, business called me to the pretty town of Saco; for on entering the depot at that place the first thing that strikes the eye is a placard bearing the following significant inscription; '*No gentleman will spit on the stove of course!*' Of course I advanced immediately and spit *at* it, but *missed* it, which convinces me that I am a thorough bred gentlemen!—I had my doubts before!'

Don't know his Master.

"Boy, who do you belong to?" asked a gentleman the other day as he stepped on board of a steamboat and saw a darkey listlessly leaning on the guards.—'I did b'long to massa Williams, sir, when I came abord, but he's been in the cabin playing poker wid de captin 'bove an hour; I don't know who I b'long to now.'

A good show with little Means.

Those ladies who so gracefully dangle their elegant purses over the forefinger, as they promenade the sidewalks, are informed that a moderate quantity of brown paper deposited in a careless wad in one end, and a mixture of coppers and bright steel buttons in the other, will be found a cheap and easy method of keeping up appearances. This rule has been tried in the "best society," with uniform success

Hogs.

Speaking of hogs—we saw one of these animals the other day lying in a gutter, and in the opposite one, a well-dressed man; the first one had a ring in his nose, the latter a ring on his finger. The man was drunk the hog was sober, "A hog is known by the company he keeps," thought we, so thought Mr. Porker, and off he went.

Sam Slick says he knew a man so mean, that he always carried a hen in his gig-box when he travelled, to pick up the oats his horse wasted in the manger, and to lay an egg for his breakfast in the morning.

Preparation of Hemp and Flax.

This is a branch of Agricultural industry which we are sure may be, and ought to be, largely increased. We have an abundance of cheap and fertile soil congenial to these plants and their fibre may be produced so cheaply as to rival and supersede to a great extent the production of Cotton. All that has thus far hindered the extensive cultivation of Hemp and Flax in this country has been the defectiveness of our processes for rotting and dressing them. Dew-rotting destroys half the value of Hemp; Water-rotting is expensive and unhealthful; while the rude and wretched processes of Flax-dressing hitherto tolerated rendered the cost of such dressing equal to the value of the product, and so rendered the culture to any extent hopelessly unprofitable But all this is now to be changed. There have been invented in the West during the last five or six years. varions improvements in the mode of rotting and dressing Hemp (applicable to Flax also,) which diminish the cost immensely and greatly improve the product both in quantity and quality. Of these inventions, three at least have come to our knowldge, all professing to combine surprising celerity with cheapness both in rotting and dressing, and to obviate all objections to water rotting on the score of health. One of them professes to perfect the rotting process in about twelve hours; the longest time required by any of them is not over two days. Some of these processes requires rather expensive machinery; others are completed at a very moderate cost. But we speak not of their relative merits, wishing merely to call the attention of the farming interest to the fact that such improvements have been made, and that the value of many a township may be nearly or quite doubled by introducing them. We surely ought not to go to Russia for hemp, nor to Ireland for flax, and need not if our farmers will look intelligently to their own interest, for we are confident that this is the greatest country in the world for growing hemp, and we need but direct attention to its cultivation. We know one large factory at Troy, N. Y. that manufactures some goods containing a considerable portion of linen yarn which has all to come from Dundee, Scotland. The broad canvass for oil cloth all comes too from Dundee.

The Water-rotting of Hemp is a new branch of the hemp business with Western farmers. In the beginning many mistakes were made, which experience has pointed out. A better article is now produced; improvements are still making and the quantity increasing. A full supply of the article for the U. S. Navy, equal in quality to the best Russia, will in a short time be furnished and all the demands of Commerce met.

Appended is a report from the Superintendent of the U. S Rope-walk at Charlestown, Mass., where all of the Cordage for the Navy is made, showing the great strength of American Water-rotted Hemp; a rope of 1 13-16 in. in circumference supporting a weight of 4,716 lbs.—being more than 500 lbs. above proof:—

Test of a sample of American Water-rotted Hemp, sent by the Hemp Agent of Kentucky (hackled.) Rope 1 13-16 in. in circumference, made of yarns:

Untarred, No. 20, three trials,			4431 lbs.
Tarred,	do	do	3893
Untarred	No. 40,	do	4716
Tarred,	do	do	4488
Proof required to be,			4200

The St. Louis papers state that hemp is being purchased in that market for Montreal. It goes by the way of the Ohio river and canals to Kingston

Self-made Men.

Arsaces was a mechanic, from which humble position he rose to be the founder of the Parthian empire. Tamerlane, the celebrated conqueror of Asia, was the son of a mechanic. John, of Leyden, in Germany, who ultimately rose to the dignity of a king, was originally a tailor. Zeno, the bishop of Constantine, celebrated for his many excellencies, was a weaver. He had the largest diocese in the country, and directed his attention to the habits of both soul and body. Peter the Great, emperor of Russia, and one of the most powerful potentates of modern times, worked at ship-building and other mechanical arts.

Force of Projectile Compounds.

The words strong and strength are very fallacious, and therefore the notion which the public have of projectile weapons and projectile compounds is, among other things, very incorrect. An ounce of powder fired loosely scarce makes a noise—a little smoke, a little smell of sulphurous gas, and all is over; yet the same ounce of powder in a musket would be a charge far more than necesasry to urge with deadly effect a heavy leaden ball. An ounce of fulminating silver, on the other hand—nay, but who would dare to handle an ounce of such a substance?—say the ninety-sixth part of an ounce, or just five grains; well, five grains of fulminating silver are taken out of a paper with much fear and trembling, touched with no hard substance for fear of explosion, then gently laid on a piece of metal, say a penny piece; then suppose it ignited by means of a very long stick with a match at one end, and begging the operator's pardon, with a somewhat rash man at the other—what is the result? A terrible crash, which deafens the operator for some days and the penny piece is bent almost double? "How strong! (exclaims a non-chemical operator,) how well this will project a ball!" He tries a small charge in a musket, and what are the results? Why the gun is burst, the iron literally rent into threads and fragments, the ball is perhaps projected but to a very inconsiderable distance—if of lead, flattened as if by a hammer; if of cast iron, broken into fragments! Now, which shall we say is the stronger substance, gunpowder or fulminating silver? The force of all explosive bodies on the gases which are liberated during the explosion, and the peculiar effects of their explosion depend on two separate circumstances, the total quantity of gas eliminated, and the rapidity of its elimination. Gunpowder, perhaps, compared weight for weight with fulminating silver, liberates more gas of the two, but not so rapidly, the liberation is progressive not instantaneous.—Hence its immediate disintegrating effects are not so considerable as those of fulminating silver, but as a projectile agent are more efficient.—*Polytechnic Magazine.*

The Cuca.

Prescott, in his "Conquest of Peru," says this is a shrub which grows to the height of a man. The leaves, when gathered, are dried in the sun, and being mixed with a little lime, form a preparation for chewing, much like the betal leaf of the East. With a small supply of this cuca in his pouch, and a handful of roasted maize, the Peruvian Indian in our time, performs his wearisome journeys, day after day, without fatigue or at least without complaint. Even food the most invigorating is less grateful to him than his loved narcotic. Under the Incas it is said to have been exclusively reserved for the noble orders. If so, the people gained one luxury by the conquest; and after that period it was so extensively used among them, that this article constituted a most important item of the colonial revenue of Spain. Yet, with the soothing charms of an opiate, this weed, so much vaunted by the natives, when used to excess, is said to be attended with all the mischievous effects of habitual intoxication.

Copper.

Copper was first carrried in England in the reign of Elizabeth. Its issue was limited at first, and its reception unfavorable. In 1672 the coinage was increased—half pennies and farthings, silver pence, half pence, and far things were issued during tho reign of Edward III, in 1351. Then came groats and half groats; afterwards the shilling. Crowns were first coined by Henry VIII; half crowns by Edward VI; also six pences and three farthing pieces. Since the 43rd of Elizabeth the coinage has remained the same Gold was first coined under Henry III, 1257, and was issued in the denomination of pennies. The Guinea was first coined in 1663, of Guinea gold; its original value was 20s., but it never went for less than 21s., by tacit consent. It is computed that the whole coined cash of the kingdom passes through the bank once in three years.

It is computed that the debt of Mexico is now $152,000,000.

Anecdote of Raising the Obelisk at Rome.

After the proposal and adoption of an infinite variety of plans for its erection, the trial of which had caused an enormous outlay to the government, and always resulted in failure, Pope Sixtus V. at length declared, that if another scheme for the purpose was unsuccessfully attempted, the architect who furnished it should be punished with death. This determination on the part of his Holiness naturally put a stop, at least for a time, to the suggestion of new experiments. At length, however, an engineer more sure of his plan, or less afraid of death than his predecessors, presented himself to the Pope, and laid a scheme before him for the erection of the obelisk. His Holiness looked over the proposal, and admitted that it appeared to promise admirably well, but at the same time observed that the carrying it into effect would cost an enormous sum of money, and reminded him of the penalty affixed to failure. The architect, Fontane, agreed to run the risk, provided only that his Holiness would publish a command, that during the progress of raising the monument, the most perfect silence should be observed among the workmen and assistants, stating that the main causes of the hitherto failures of all his predecessors, were the confused outcries and exclamations of the multitude engaged in the work or standing by.—The Pope immediately consented to this condition, and on the appointed day, having caused four gallows to be erected at the four corners of the great palace of St. Peter,—and proclaimed that the first person heard to speak aloud should forthwith be hung,—the experiment went forward in the presence of his holiness, his whole court, and an innumerable assemblage of people, who in the wholesome terror of the gibbets, preserved an universal silence. With infinite trouble, labor and anxiety, the great Egyptian needle was at length raised from a horizontal to a perpendicular position. No acclamation hailed the success of the undertaking! Thus far, it still remained to raise the vast mass from the earth to a level with its pedestal, by far the most arduous part of the task; intense anxiety was depicted on the upturned, eager faces of the breathless multitude. The obelisk was slowly raised, till when its base was within halt an inch of the top of the pedestal, the ropes by which it was being drawn up became so tense with the enormous weight, that they were seen to smoke: another moment and the monstrous mass would have fallen from their support. The wretched Fountane, sweating blood, saw the impending catastrophe of his all but successful attempt: suddenly one of the workmen cried aloud, 'Acqua!' The crowd rushed to the fountains, the saving element was dashed over the strained and tightened ropes, the final haul was given, and the obelisk lodged upon its pedestal, when one universal shout that rent the sky, broke forth and hailed the accomplishment. The Pope, however, commanding silence again, called before him the artisan who in spite of his command, had ventured to speak. The poor fellow acknowledged himself worthy of death for having spoken, but pleaded that the salvation of the obelisk deserved some reward,—The Pope allowed the justice of the claim, and gave his forfeited life, adding graciously, permission to choose any boon he might name for the service he had rendered. The man besought for himself and family the monopoly of the sale of palm branches on Palm Sunday, in the Square of St. Peter's, and to this day his descendants exercise that traffic, and derive from it a very considerable profit.

A beautiful Geological Discovery.

A short time ago while some men were at work on the streets of Eaton, Ohio, one of them broke a stone in which was found a beautiful purple flower with some green leaves as fresh in appearance and as soft to the touch as though it had been grown in a green-house. The stone had been in the street for twelve years, but the flower was evidently in the stone when it was quarried. It must have breathed for a long time its fragrance on the desert air." Perhaps some fair daughter of the antediluvean world had buried it in the cleft of the rock. If Josiah Priest is to be believed at all, Ohio was peopled by the sons of Methuselah.

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NEW INVENTIONS.

Railroad Sprinkler.

On the Stonington Railroad they carry a "Sprinkler," of which the Providence Journal speaks highly. It is for the purpose of watering the track and road bed; thereby diminishing the friction of the cars upon the track, preventing the boxes and journals from being heated, by keeping away the dust, preserving the paint and varnish by not having to clean the cars so often, relieving the passengers from great annoyance, and taking from the brakemen a large share of their labor at the through stations. This improvement has been fully tested for the past two months upon the road, and found to be very popular with travellers. It requires about two thousand gallons for the Stonington Road, (forty-seven and a half miles). The machine is attached to the train behind ths usual water tank, and is under the control of the engineman by a rope attached to a valve which he shuts and opens at pleasure. When it is in operation not a particle of dust appears inside or outside of the cars. In warm and dry weather the car windows can be left open without objection. This is a useful invention where there are tracks running through sandy districts.

Mortising Machine.

Mr. T. A. Chandler. of Rockford, Illinois, has invented a Mortising Machine which, with one man to turn the crank, will cut a mortice six inches long, and as many deep in half a minute, and if the power were sufficient, it is calculated that it would do double the work in the same time. It can easily be adapted to all kinds of work, whether upon heavy timber, or upon doors, window-sash, &c., and can be driven by steam, water or any other power, as may be desirable. Although working so rapidly, the mortice is cut as smooth as tools could possibly make it, and without the least fracture of the wood, and the partition between any two may be as thin as pasteboard. The advantage claimed for this machine over those for a similar purpose now in use, is that the mortice is completely finished at one operation, only a few loose chips being left in it. There are four chisels, two of which move perpendicularly, and two have an eccentric motion, whose use is to chip out from the centre after the others have cut the ends The latter strike laterally and at the same time with an upward circular movement.

We have seen this machine, and believe that Mr. Fitch is now in this city, endeavoring to dispose of patent rights, &c.

Seed Plough.

Mr. David Anthony. of Union Springs, N. Y., has made an important improvement in the gang or seed plough. It is well known that while much attention has been paid to Cultivators and all kinds of agricultural implements, very little has been done for the seed plough. Planting corn and potatoes is a toilsome and tedious task, and a mechanical remedy for such labor is desirable to every farmer.

Improved Car Wheels.

An improvement in the construction of car wheels is suggested by Mr. J G. Cooper, of Columbia, Pa. The car wheel is cast in the ordinary way, except the hub part, in which is left an open space of ten inches diameter, into which is fitted a cast iron hub turned to fit nicely into its place, and bored in the centre for the axle. The hub has a rabbet on the outer edge to keep it from slipping and the whole is keyed on the axle.

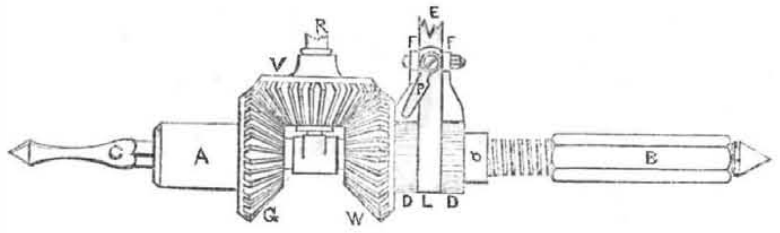
Improved Cotton Gins.

A valuable improvement has been made in Cotton Gins, by E. T. Taylor & Co., of Girard, Georgia, which consists in a new arrangement in the machine for tightening or loosening the main band without cutting or altering the length.

Improved Spinning Jenny.

A valuable improvement has been made on the Bale Rope Jenny, by Messrs. Bland & White, of Louisville, Kentucky, which can spin 1000 lbs. of bale rope per hour, attended by one spinner and two piecers. This new Jenny can be made, it is said, for five hundred dollars.

DOUBLE RATCHET BRACE.



Description.—A is the spindle, which is screwed at top to allow the back centre piece B to move to and fro upon it. C is the drill. D D, are two ratchet wheels, one of which is attached to the spindle A by means of the pin, and the other to a mitre wheel, W, which revolves loosely on the spindle. E, is a handle which terminates in a ring or eye, L, which encircles the spindle in the space between the two ratchet wheels. F F are two palls, secured to the handle by a pin and nuts, one of which takes into the teeth of the ratchet wheel above the ring L, and the other into the teeth of the wheel below it. P P are springs, one of which only is seen in the figure, which act against the back of the palls. G is a second mitre wheel, which is keyed to the spindle A. V is a third mitre wheel, which works into the other two wheels, and is loosely attached to handle R, which terminates in an eye-piece which encircles and turns loosely on the spindle A.

The effect of these arrangements is, that by holding the handle R fast, and moving the other handle E from side to side, a continuous rotary movement of the drill is produced, which every one acquainted with the use of this tool must at once recognize as a most important advantage.

New Hemp and Flax Brake.

It is well known that hemp would be a most valuable article of agricultural growth and manufacture, were it not that hetchelling and breaking cost so much, about $15 dollars per ton. The genius of man has been taxed for fifty years on the subject of producing a machine, or implement to lessen the cost of breaking Hemp, which the records of the Patent office abundantly show. Mr. James Anderson, a highly respectable citizen of Louisville, Ky. has, for a number of years given his attention exclusively to this subject, he being well acquainted and familiar with all the brakes and machinery heretofore offered for the purpose of breaking and preparing hemp, and after repeated experimental trials on various plans of his own conception, spending a large sum of money in making these experiments, he at length has hit, he thinks, upon the true principle of constructing a Hemp and Flax Brake, and has made application for a patent.

This brake is quite simple, not expensive in construction, is easily made, and is driven by horse water or steam power. A model of this Brake was in our city a few days, and it will be exhibited at the State Agricultural Fair, to be held this month at Saratoga.

Preparing Hemp.

Mr. Anderson has also invented a new method of preparing Hemp or Flax expeditiously for the brakes, differing in principle from any of the old processes of dew or water-rotting. He uses a weak solution of copperas, in which the Hemp or Flax is steeped a short time, and as soon as it is dry, it is ready for the brake. The combination of the sulphate with the albumen and other properties in hemp produces a most beneficial effect on the lint, *strengthening* and *preserving* it. So that in fact Mr A.'s process insures durability, tending to prevent fermentation, the cause of decay.

The farmer by using Mr. Anderson's Brake and process of curing, will be able to get his crop to market much earlier than by either of the old methods; the lint is said to be of much greater strength and of more durability.

New kind of Paint.

We have been informed that Mr. R. Shaler, of Madison, Conn., has invented a new paint which he says has been fairly tested and found to be applicable to wood, stone and brickwork, and also for inside painting. Old buildings and walls around his place that had stood for twenty years without being painted, have been operated on with success, and it is said to look well and is durable. It is manufactured and sold for 40 cents a gallon, ready for laying on, in various colors. We are not able to tell whether it is equal to linseed oil mixture or not. It is at least of but little expense

Sawing Engine.

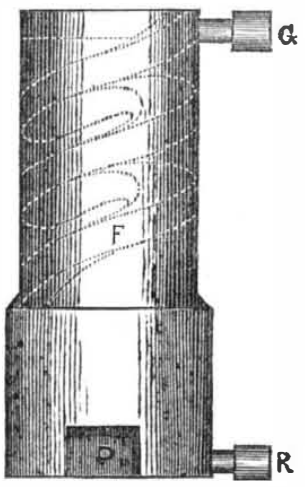
At a recent meeting of the Royal Institution in London, Professor Faraday called the attention of the members to a working model of a sawing engine, invented by Mr. Cochrane, a young American By this engine wood can be cut into curves of double curvature, (i, e. curves in two planes.) This effected by the saw being made to turn on a vertical, while the wood is turned at the same time on a horizontal axis.

Life Preserver for Threshers.

The Ohio Cultivator, in speaking of injuries from dust, to the lungs of persons engaged in threshing, gives the following receipt as a preservative of life :—

Take a piece of the finest sponge, large enough to cover the mouth and nostrils, hollow it out so as to fit closely, tack a tape string around the outside, long enough for the ends to tie over the top of the head; soak the sponge in soft water and squeeze the water out with the hand, then when ready to commence work tie it on tightly and evenly, so as to cover the mouth and nostrils completely.—You can breathe and talk as freely through the sponge as without it, (though it will trouble those who use the "filthy weed,) and you can thresh where the dust from the machine rises like a dense fog around the head, and the lungs will be as free from harm as if you were hoeing corn.

New Steam Generator.



While we are busy with improvements and inventions for manufacturing purposes, it must be confessed that but too little attention is paid to domestic economy. Here is an invention for heating apartments or steam baths, or for steaming dairy feed, which promises to be of great advantage to farmers, or for public houses, for cooking, &c.

The lower part represents a double cylinder of cast iron, the parts fitted by flanges and screwed up and the seams cemented. The fire, therefore, is in the very centre of the cylinder fed by the door D, and the water above at a suitable elevation can feed the cylinder under any head of steam. F, is a spiral steam pipe conducted through part of the chimney, so that all the heat of the fuel will be economised before it is conducted through G, to perform its labors, using a practical expression. We would observe that, if the spiral steam pipe is conducted through the chimney to any distance beyond where the heat from the fire ceases to be as hot as the steam in the pipe, it will then be found of no benefit. The chimney can be built horizontal with returning flues and thus economise every particle of heat It will be fitted with gauge cock and safety valve, to render it complete and safe.

Drilling Machine—Value of American Patents.

A machine has been constructed by a Mr. Nicholson, in England, only altering somewhat says an English paper, the Westmoreland Gazette, the design of the one for which a patent was granted in America some time back. Previous to its being forwarded to its destination on the Caledonian Railway, Mr. Nicholson tested its power and efficiency on the hard, compact, calcarous rock on the Kendal Fell, and the result was such as fully realised his expectations. The machine is extremely simple in its construction, and is worked by horse power, although it may be made to any size, and worked by various means.) and is admirably adapted for all kinds of perpendicular boring. The drill or ramper weighs 325 lbs. ; and the manner in which the machine is made to lift this ponderous instrument displays remarkable mechanical ingenuity, every turn of the connecting wheel causing a portion of the machinery to lift up the drill until that portion comes in contact with a cross bar at the top, by striking which the drill is again released, and falls with great force into the hole. By another ingenious contrivance, the drill is made to turn half round at each fall, thereby making the bore perfectly round and even. A short time since the machine was put in operation on a table of limestone rock and in 3½ hours, by the aid of two men and two horses, it had bored a hole 11 feet deep and 4 inches in diameter—thereby performing what it was computed 30 men, in the same space of time, would not have been able to have accomplished. When in motion the ramber made 40 to 42 strokes per minute, and bored about 2 feet an hour ; but it is capable of making 60 strokes per minute. This hole was afterwards charged with 30 lbs. of powder, and a blast took place, which raised from its bed to the height of two or three feet, the enormous amount of 5000 cubic feet, or 416 tons of solid rock, which fell severed in large blocks, nearly in the same position. The novelty of the process attracted a large number of spectators, and the facility with which the machine worked, and the extraordinary result of the blast excited the admiration of all. In excavating heavy rock cuttings the machine must be found a great acquisition, and its general adoption will cause a total revolution in the manner in which these undertakings are at present performed.

Locomotives for Overcoming Inclines.

Mr. D. Erskine, of the Royal Scottish Society of Arts has invented an engine which promises to work well, it is said, on an incline of 1 foot in 12. The following description will not be uninteresting:—

In addition to the small wheels keyed on the axle outside of the usual large wheels of locomotives, and connected by connecting rods, Mr. Erskine has a toothed pinion on each side of the engine, dropping down betwixt the flange of the small wheels and the large wheels, which, on the locomotive coming to a steep incline, say 1 foot in 12, works into strong pins or bolts fixed on the inside of the raised rail. The engine and carriages all the while running on the small wheels, by which their whole weight is borne, and the large wheels acting as fly-wheels, leaving the toothed pinions nothing to do but to work in gear with the pins or bolts, thereby effectually preventing slipping. It was shown by a beautiful working locomotive of about nine lbs. weight, made by Mr. Erskine, and fitted with his reversing pivot valve, that by this means it easily ascended an incline of 1 ft. in 10; and on an incline of 1 in 16, the small wheels themselves, without the toothed pinion, easily accomplished the ascent; whereas the engine could not attempt the ascent with its ordinary large wheels. This is not the first time a rack and pinion has been proposed on the inclines of railways, but it has never been proposed in the way now done by Mr. Erskine, by whose method the power is so vastly increased by being brought to act so near the centre of the wheel.

Starch.

A starch factory in Lapeer county, Michigan, consumes yearly 200,000 bushels of potatoes. What a waste of food just to make frills and shirt collars stick up!

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NEW YORK, SEPTEMBER 18, 1847.

The Scientific American.

This number completes the second volume of the Scientific American, and we feel no little pleasure in being able to state that our subscribers have tripled in number since the commencement of this volume, enabling us confidently to say that we have now the largest circulation of any other paper in the world, devoted to the same objects. Our subscribers will no doubt feel pleasure equally with us, in hearing this intelligence, as we have received many tokens of gratification for the valuable information we have been enabled to furnish them through our columns week after week—information derived from much experience, a very extended correspondence throughout our own great country and also from Europe, together with selections from the most authentic sources.

The matter contained in the Scientific American is of a peculiar kind, it being an advocate of Industry and a Journal of Science and Mechanical improvements, also a Patent Register. It therefore requires much labor and expense to collect, arrange and provide such information. This we believe has been done successfully and satisfactorily, as our increasing subscription list will fully testify. We have endeavored, and always will, to combine plainness of speech in description, and to maintain an elevated and dignified tone upon all subjects. We have had two great objects always in view, viz. to elevate and instruct, and it is our firm belief that a pure faith and an intimate knowledge of science and art, will conduce more to the honor and elevation of man than any other causes whatever. We believe that the Scientific American has been the means of exciting an interest in scientific pursuits wherever it has become known, and this gives us courage to go forward and make greater efforts in the dissemination of useful information, and we hope that we shall be able to say during the next year that our subscribers have increased in the same ratio as during the past. There is still a wide field for circulation and as this volume has steadily improved in matter and appearance, so shall our next exhibit still greater improvements As a work of reference—a Cyclopædia of erudite knowledge, we venture to affirm that no other paper can surpass it, if it can be equalled. We have received the most flattering opinions of the press from every part of the United States, opinions which we sincerely appreciate.—Professor Johnson, too, Editor of that famous magazine, the London Mechanic and Practical Engineer, says " we have received three other numbers of the Scientific American and looking over their pages we perceive still greater improvements." It shall be our duty to labor more fervently, not merely to retain our good name, but in endeavors to do more good by the spread of true knowledge over a still wider field. In such a work all those who feel interested in the fostering of American Mechanical genius, American Science and Art—all who feel an interest in the elevation of man and the cultivation of the mind, and all who are desirous to see useful information widely disseminated, will assist to extend the circulation of Volume 3 of the Scientific American.

Nothing Need be Wasted.

Prussiate of potash is very extensively manufactured in Cincinnati, and exported east for the use of dyers and others. It may be curious and instructive to readers to know that Prussiate of Potash is made of Potash, old shoes, hoofs of cattle, woolen rags, and all refuse animal matter. But the main thing used by them is the refuse of the hogs killed in the vicinity, viz: the hoofs, hair, blood and cracklings or scraps of lard, so there is nothing left of the hog. The same use could be made of shoemakers' and bookbinders' leather scraps.

Niagara Suspension Bridge.

This grand enterprise, we believe, is no longer a matter of doubt. The point selected is the very place we pointed out to a friend as the most suitable, while we were at Niagara last winter. The spot is a little more than a mile below the Falls, and from the bridge will be seen both sides of the Falls and the Rapids. The danger of ice accumulating from the spray on the bridge, will not be an object of fear from top weight, a danger which we spoke of, if the bridge should be built at the ferry. The distance across the river is about 850 feet. Based upon the solid rock will be towers or monuments, rising to the height of 70 feet. From them will be stretched two bundles of wires, answering the purpose of stringers in ordinary bridge building. They will be one-tenth of an inch diameter, each one drawn separately to the required tension.—Then, without being twisted, each bundle will be brought together, wound with wire, and secured against the effects of exposure to the weather. The bundles will be ten inches in diameter, and from them the whole structure will be suspended. The ends of these will be drawn over the 70 feet towers, by passing through the solid rock, 10 feet in thickness, and keyed or secured below.

The bridge will be lattice work and will have two ordinary carriage ways, passing over nearly upon a level with the tops of the banks, and over them in the centre, a railway track.

To guard the whole structure against swaying or vibratory motion, guys or stays of iron wires, will pass off from each side of the bridge, through its entire length, obliquely, and be keyed to solid fixtures upon the banks.

The cost is differently computed by different engineers. One has estimated it at $200,000, and another, varying the plan, at $220,000.

A Great Opening for Mechanics.

There is a great opening for mechanics in California, and will doubtless continue to be for many years to come. A tailor will charge twenty-four dollars for making a plain frock-coat, and finding trimmings; five dollars for the plainest kind of pants, and every thing else in proportion. A blacksmith will not work there unless he can make from six to ten dollars per day. There was a wharf partly built in Monterey, last year, and a crane put on it for hoisting bales, boxes, &c. An iron band was required to go round the cap in which the crane swung. There were then four blacksmiths in Monterey, and he who was considered the best workman, was engaged to weld this iron band, which consisted of a piece of flat bar iron, six feet long. On asking the blacksmith what he charged to weld that band and put it on the cap, he said six dollars per day; which was agreed on. The job took the man six days to finish it. Carpenters charge eighteen dollars for making a panel door of the most ordinary kind, and of red wood which is remarkably easily worked; and the same price for a pair of common shutters, made of the same wood. For making window sashes fifty cents for every pain the sash contains, and four dollars per square for laying a floor, if of red wood, and six dollars if pine.

Copper Ore in Maryland.

A Copper Mining Company is now being formed for the purpose of working several locations in Frederick county, Md., where copper ores are abundant, and have been to some extent worked by private enterprise. Some time prior to the Revolution, an enterprising Englishman by the name of Stevenson, engaged in mining for copper in the vicinity of Liberty, and in the course of his operations was amply rewarded by the quantity of ore which he shipped to England.

The City of Buffalo.

The most striking characteristic of Buffalo is its vast commerce. It is literally choked up with shipping—with sail vessels, canal and steamboats. One would suppose to behold these, that there were enough to carry off, at one load, the produce of the fields of a State; when in fact, there are not enough to do the business required of them. In the last two months there have arrived at Buffalo, as tables show, over one million of barrels of flour, two millions of bushels of wheat, and corn in amount almost beyond calculation.

American Mechanics in Russia.

Messrs. Harrison, Winans and Eastwick, three enterprising Americans, of whose operations we have spoken before, have a contract with the Imperial Government of Russia for the construction of the engines and cars for a great railroad from St. Petersburg to Moscow, under the superintendence of Major Whistler. Their factory, covering several acres, is at Alexandrosky, near St. Petersburg. In their great warehouses erected to receive the finished work there are now 134 locomotives and 1200 cars of different kinds stowed away ready for the road. By their contract they are to make between two and three hundred engines and several thousand cars. Six steam engines were in operation, moving the most beautiful machinery, the invention for the greater part of the enteprising proprietors themselves, and near 2000 serfs were employed in the several departments—the establishment turning out five complete locomotives in a month, as many cars a day—or, as some of the company expressed it, " a mile of cars a month !"

The passenger cars are built after the manner of those in general use in the United States—that is, long and not cut up into apartments for six or eight persons only, as are those upon all other European railways. This innovation, when first proposed was not well received by the Russians, but its advantages were so strongly urged by our mechanics that the " Yankee notion," was allowed to prevail.

Distribution of Wealth.

The value of the real and personal property in the United States has been estimated as low as $6,000,000,000, and as high as 12,000,000,000, and the value of the annual produce of land and labor, from $1,200,000,000 to $2,000,000,000.

The real and personal property of Great Britain is estimated to be worth $25,000,000,000, and the value of the annual product of this capital to be worth about $2,500,000,000.

If the property of Great Britain was about equally possessed by each head of a family, supposing each family to consist of five persons, the share of each would be near $6,000, and the annual income of each family would be about $500 If the wealth of Great Britain was distributed to the mass of the population, there would be something like $1,200 for each man, woman, and child.

It is supposed there are about ten thousand persons in Great Britain, the aggregate value of whose wealth constitutes about nine-tenths of the entire national wealth, leaving one-tenth to be owned by the rest. The national debt of Great Britain is near $5,000,000,000: yet there are, it is supposed, some sixteen or seventeen hundred men whose aggregate wealth would suffice to pay the whole of this immense amount—which is to be about one-fifth of the value of the entire wealth of the nation.

Silk Manufacture in Louisiana.

The New Orleans Delta, in speaking of American silk, says it has received from Mr. Davenport, of the Louisiana Advocate, a couple of twists of the most beautiful silk, raised and spun by Mr. Maie, near Covington, Parish of St. Tammany, in that State. The opinion has been long entertained by persons in the State that the lake parishes were admirably adapted for the culture of the multicaulis, and the raising of the silk worm. Mr. Maie has satisfactorily proved the truth of this opinion. The specimen he has sent are of a beautiful quality and texture. The success of this experiment will no doubt direct the attention and enterprise of the people of Louisiana, to this promising and profitable employment of silk raising.

We have seen some silk grown and manufactured in this State, equal to any Italian, and there is a considerable trade of silk thread in Auburn, N. Y., Nantucket, Mass., and Mansfield, Ct

Embalming.

A case of embalming was recently experimented on at our Alms House Hospital by the consent of Dr. Reese, which proved to be unsuccessful. Could this art be simply and certainly practised, it would be consoling to the friends of deceased and beloved relatives.

Utica, N. Y. Screw Manufacturing Co.

The building occupied by this company is located on the Bleecker property, between Bleecker and Jay streets, a short distance east of the market. It is four stories high besides the attic and cupola, and is a very substantial building, one of the best for model and design in that city. It cost about $10,000. The machinery is moved by steam power, and the screws are *wood* screws.

This company commenced operations last winter under the firm of Messrs. Harvey Barnard, John J. Francis and Louis Lawrence: since then the means of the company have increased, and so far they have met with sale for all the screws they could manufacture, and they are now adding to their machinery with a view to increase the amount manufactured. They employ at present 34 operatives a considerable portion of whom are at present engaged in making machinery. They intend to make 1000 gross of screws a day, when their machinery is complete; the machinery, for which will cost about $30,000; and they may conclude to enlarge the capacity of the manufactory so as to make 2000 gross a day, the machinery for which will cost from $50,000 to $60,000. They have machinery up now for making 300 gross a day. The machinery used was invented by Thomas W. Harvey, of this city. The Company have introduced the latest improvements.

The process of manufacturing is very curious and interesting. The screws are made of wires of different sizes. It is first run through a machine and cut off at the right length and headed. They then pass through another machine in which the heads are completed. After which they go through another in which the screw is cut. After this they are polished; then assorted, and finally packed in separate grosses, and then in bundles.

Railroad from Mauch Chunk and Tamaqua, Pa., to New York.

A report favourable to the construction of a Railroad up the valley of the Lehigh to the Coal region, has recently been made by John Chilce, Civil Engineer.

The distance from Easton to Tamaqua is stated to be 59½ miles, and to Mauch Chunk, 46½ miles. The estimated cost of the road exclusive of engines, cars and other equipments is $2,000,000. The cost of equipments $751,000 making total cost $2,751,000.

The road is to be extended from Easton to Elizabethtown Point, and thus open a direct communication by Railroad from this region to the City of New York

To our Old Subscribers.

We return our sincere thanks to many of our old subscribers for their attention and kindness. A number of them have felt so interested in the Scientific American that they have through a love of seeing useful information propagated, got numbers of their neighbors and acquaintances to subscribe, and when they become subscribers, they continue such. Within the past few weeks we have received many marks of this kindness and esteem, for which we feel much indebtod. We believe that no mechanic or lover of the useful, can spend money to better advantage than by subscribing for our paper. We publish some receipts of ten times more worth than the price of subscription.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

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Great Work of Art.

The history of the unfinished Cathedral of Cologne is not so universally known, but that the following account of its completion taken from the Westminster Review will be read with interest.

A greater triumph of mind than history has yet recorded of individual achievements in art will be the completion, within the nineteenth century, of the Cathedral of Cologne. Six hundred years have passed away since the original design was traced of this, the noblest monument of mediæval architecture. The name of its author has been forgotten but his spirit has lived to witness the Present doing homage to the genius of the Past—art confessing itself outdone—and the people of different States, and opposite creeds—Protestant, Catholic and Rationalist, combining to complete the unfinished monument of their forefathers as an acknowledged model of taste and constructive skill which has never been surpassed.

The first stone of the Cathedral was laid on the 14th of August, 1248. The building was continued at intervals during the next two centuries, and then abandoned. The intention of completing it, however, appears never to have been relinquished, and the crane, which had been employed for raising the stones to their destined height was left on the top of the south tower, in anticipation of its further service. There it remained four hundred years, regarded by the inhabitants of Cologne as a symbol and pledge unredeemed, but for which a time would come. When, at last the crane fell to the ground from decay, it was not only missed, but its loss was felt as a public calamity. With the crane all hope seemed to have departed, and it is not a little curious and interesting, that this simple incident should have led (as it would seem to have done) to the great national effort now making for the restoration and completion of the entire edifice.

An old Burger-meister bequeathed a legacy towards restoring the crane, or replacing it by another in the same position. This was done in 1819, and paved the way to a subscription for repairs, which in 1824 was aided by a grant from the Prussian government, obtained through the efforts of the present king of Prussia; then the crown prince. The attention drawn to the edifice during the repairs of the choir was of course favorable to the discussion of plans for the attainment of the ultimate object. These had been first seriously entertained by M. Boissere, the historian of the Cathedral. whose zeal in the cause had been greatly stimulated by the remarkable discovery of the most essential portion of the original design—that for the northern tower, and a great part of the western gable—on a large sheet of parchment, found by a sign painter, nailed to some boards to make a floor for drying beans. The original design for the southern tower was subsequently discovered among the mass of objects of art which had been removed to Paris from all parts of the continent, during the wars of the revolution.

The new foundation stone for the body of the church was laid with great ceremony on the 4th of September, 1842, by the king of Prussia surrounded by princes from nearly all the royal families of Germany, and in the presence of a countless multitude of spectators, embracing the whole population of Cologne and the neighboring towns on the Rhine. At its conclusion, the block having been lowered, and the usual speeches delivered, the Dombau Meister addressed the artisans, telling them to resume their labors to the music and sentiment of Schiller's "Song of the Bell."

He was answered by a hurrah from the tower, the crane moved slowly on its axis; a chorus of workmen's voices rose in sonorous melody; a block of stone was seen mounting through the air; every hat was waved, his Majesty's the heartiest of them all; and amidst roars of cannon, one more stone was added to the tower, where the last had been left about four centuries before.

Chromium is a metal of a greyish color, very difficult to fuse. It unites with oxygen and forms a fine green oxyde. This is the basis of a fine yellow paint

A Stupendous Structure.

The following description of the magnificent bridge now in progress of erection over the Menai Straits, we take from one of our English Exchanges:—

"If we suppose ourselves stationed in a boat in the middle of the Menai Straits, a few hundred yards distant from the new bridge on the south side, and suppose it finished, we shall see a wonder of the world of this kind; first, there is a middle pier rising out of the water founded on the Britannia rock, after which the bridge is named. This rock can be seen at low water. The breadth of this pier is 62 feet by 53 feet and a fraction. The blocks of stone are 7 and 8 feet long by 3 and 4 feet in breadth and deepness, and they rise, stone upon stone, until the pier is 230 feet high. At the distance of 460 feet on each side of this centre pier, there rise near the water's edge, two other piers of the same gigantic breadth and height: while on each side of these two piers, at the distance of 250 feet, there rise two walls, continuing outwards, the wall on our right hand, on the Carnarvon shore, does not extend its ponderous bulk far back, for the land is high and bold, and the railway comes along its elavated brow and at once lays hold of the bridge. But on our left hand, which is the Anglesea shore, the wall is the forehead and end of a mighty embankment on which the railway is raised to a level of the bridge. There then, are the four spaces before us, across which, in the iron tubes. the railways is laid, namely, two spaces on each side of the centre pier of 460 feet each (let the reader measure 460 feet on a street or on a road and he will wonder at the vastness of this structure:) and two more spaces of 250 feet respectively at each end. The tubes are eight in number, each of them 30 feet on the exterior side, and 26 feet high in the interior. Each is 14 feet wide, and they are laid in couples parallel to each other. In the whole, with the breadth of the piers and the landward buildings, the length of the bridge is one third of a mile. Its height the three piers are as already said, 230 feet. Measuring from low water mark to the bottom of the tubes, the height is 130 feet, the tubes being 30 feet on the side, and the pier 70 feet above their upper surface. As ornaments to the two walls which rise upon each shore, are four lions, two at each end of the bridge. The lions contain about 8,000 cubic feet of stone. They lie couched, and yet the height of each is 12 feet, the greatest breadth across the body is 9 feet, the length 25 feet, the breadth of each paw two feet four inches. The tubes are made of plates of iron of various thicknesses, rivited together. The iron increases in thickness as we proceed towards the centre. The roofs of the tubes are formed of cells, and also the floors These cells are formed of iron plates set on edge, the cells of the roof being within a fraction of one foot nine inches square and those of the floor being one foot nine inches wide, and two feet three inches deep. The rails on which the trains run are laid on these cells of the floor. The flat bottom, the two upright sides, and the flat roof of each tube are formed of plates, the thinnest of which is a quarter of an inch, and the thickest three quarters of an inch. The weignt of each of the four long tubes will be about 1,300 tons; the weight of each of the four short ones about six hundred tons. In the whole there will be at least 7,600 tons of iron used. The masonry was contracted for B. J. Newell & Co., at 130,000*l.*: but from alterations in the plans it will cost 200,000*l.* They expect to finish the masonry by August, 1848. It will contain 1,500,000 cubic feet of stone.

A Discarded Headsman.

The public executioner of Paris having lately been dismissed from his place, without, as he thinks, sufficient cause, has drawn up and published a pamphlet in which he pleads for restoration, on the ground that in the whole course of his experience he has acted with the greatest kindness and respect towards all his *clients*, that he has invariably cut off their heads in a very neat style and great dispatch, and that he has introduced some important improvements in the guillotine

Interesting Apprentice Case.

A short time since the following case came before Judge Kelly, at Philadelphia. Thomas H. Dawson, an indented apprentice to William Cook, Sr., ladies' shoemaker, came before the Court, praying to be discharged from his indentures, on the ground that they had not been fulfilled by the master—that no attention was paid to his instruction in the trade and that he had not been provided with fit, or sufficient clothing. Dawson was indented in 1841, for seven years, but a few weeks since left his master, and was subsequently arrested and committed. He was brought upon a writ of *habeas corpus* and admitted to bail for the purpose of filing a petition for a discharge from his indentures on the above grounds. Alex. Wilson, Esq , appeared for the applicant, and Col. J. P. Fairlamb for the respondent. It was shown in support of the application that Dawson was dependent upon the kindness of the journeymen for all the instruction he received, and that he was without a change of clothing for Sunday wear. Colonel Fairlamb in the cross-examination endeavored to show that he had a change of clothing at his *mother's*, and soon after asked the witness when the term of D.'s apprenticeship would expire, to which he replied that the indentures would show, Mr. Wilson thereupon handed the instrument to Judge Kelley, who carefully examined it for a moment, as Col. F. proceeded to cross-examine the witness, and then returned it, at the same time utterly confounding both the counsel and parties, by saying—"There is an end to the case, gentlemen. *This is no indenture!*" It appeared, on examination, that the instrument was signed by the step-father instead of the *mother* of the apprentice—a fact that had escaped the attention of both attornies—and that such an instrument has been decided by the Supreme Court to be a nullity.

Queer Game.

A traveller describing a place in Africa, says—"Here to our surprise, we observed no less than five rhinoceroses, slumbering like fat pigs in a straw heap, and one leisurely drew near our ambush, but soon halted, and with a grunt arranged his ponderous frame in the most convenient manner for repose. After a brief council of war, we both fired together into the shoulder of the one nearest us, which was protected by an intervening shrub. —Never did antelope rise more nimbly at hearing the lion's roar than did these five sleepers from their siesta. The wounded one probably scenting the powder, came thundering towards us like a locomotive engine; the rest fortunately took another direction, for we could scarcely have withstood such a charge of heavy cavalry. We dodged behind the bushes, through which the animal crashed as through so much grass, and had the felicity of seeing it hurry beyond us; for my friend was within an ace of being trampled upon by the enraged animal in its headlong course."

Leaning Tower of Pisa.

The Campanile, or Leaning Tower, which had been much shaken by the earthquake in September last, and which had stood the siege of time since 1174, has now become, almost a total ruin, having fallen to the southward, reaching nearly to the Strada across the green Strange to say, the upper portion was comparatively but little shattered, having been so admirably clamped with iron. The centre is a completely mutilated ruin, from the extreme weight of the superstructure—which remained whole. The marble pillars, of which there were nearly two hundred, were very much shattered, though some of those from the extreme top were but slightly injured; fortunately the bronze doors which were brought from Jerusalem, are uninjured; —the Tower up to the first landing, (about 20 feet,) remaining immoveable; so that, as it now stands, the great secret of whether this building was purposely constructed 12 feet from the perpendicular or not, still remains a mystery.

There is a woman in Hull who fancies she has a *rat* in her mouth, but she can't be prevailed upon to hold her jaw long enough to let it be got out.

TO CORRESPONDENTS.

"J W. of Vt."—A description of the endless chain pump will take up too much room for insertion, especially at present, as it is not not long since a full account was given and the manner of construction.

"R, J. of Ct."—We have seen the Cary Plough and been favorably impressed with its advantages. The mould board is put on with bolts and can be taken off at pleasure. The curve on the beam is a great advantage in ploughing down clover, an economy by which some good farmers profit on light soils.

"W. W. F. of Pa."—The utility of your scheme for using the waterfalls on canal locks cannot be doubted. The only objection is a want of regularity. If that can be overcome it will be of great advantage.

"Z. W. C. of Mass."—We have sent you the desired information.

"G. W. V. V. of Salina."—All is correct in regard to sending the subscription to the Mechanics' Journal to Mr. Munsell. Subscribers can either send to this office or Albany. We shall give your excellent communication due attention in its proper order Subscribers to the Mechanics' Journal in Syracuse will be pleased to forward their subscriptions here as soon as possible; also those of Buffalo, Lockport, Medina and Rochester.

"W, S. of R. I."—We have answered you by mail.

"M. K. of R. I."—Your plan of preventing accidents on Railroads, is one of a philanthropic character, and we hope it will be successful for the purpose intended There can be no doubt but that it can be connected with the cars, so as to stop their motion, acting in place of a brake, but its extreme length will originate serious objections, as it would be easily broken when it came in contact with an obstruction.

"J. M. of Miss."—We shall send you the correct information by mail regarding the method of preparing the cotton for dyeing, also the wool for indigo blue.

"J. W. of Ala."—Your water wheel is not so well adapted for the purpose mentioned, as some we have seen; yet there is a principle about it which is recognized to be of great advantage, viz. its reactive power Reaction water wheels are in general use. Your gun cane, with some little difference in the construction of the breech, is to be found in a number of gun stores. We doubt not, however, but that it is original with you, and we kindly thank you for your generous offer.

"A. K. H. of J. C.'—Your first question can be answered by its antithesis, the earth's speed. Your second by adding to A, and subtracting 1-8 from B, leaving A 168 6-8 acres and B only 131 2-8=300 acres.

"Bramble Brae of Va."—We have received your communication and will answer as soon as possible.

"J. A. T. of Ala."—We have sent you the statement of price, bore, length of stroke, &c. of a beautiful engine of 20 horse power, and expect an answer by mail.

"R. U B. of N. Y."—Your perpetual motion can be of no use at best, but as a toy.—Your ingenious mind would be better employed at something else.

"F. S. of Indiana."—What has become of your propeller.

"A. McQ. of Mass."—We expect to hear from you soon how your invention is progressing, &c.

"T. L. of Mass."—It is perfectly possible to raise a column of water 100 feet high by a very simple hydraulic apparatus, which we have seen perform successfully.

"J. R. of Mass."—The sulphate of zinc is made by dissolving thin pieces of zinc in vitriol

A Fine Thought.

A correspondent of the Harbinger, thus finely expresses a fine idea:

"There is nothing that I delight in more than to float upon the rocking sea-waves; and listen whilst the ocean sings the deep quiet of its base into my soul. I have ever felt that man's greatest thoughts and noblest purposes come to him by the sea-side. What an audience chamber does man stand in, when by night, he watches upon the shore of the voiceful sea, whilst above him, the Upper Deep, crowded with shoals of stars, utters with tongue of awful silence, the mystery of life within his ear?"

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To our Patrons and the Public.

We take pleasure in announcing to our patrons and the public, that in consequence of the flattering encouragement received from them during the past year, we have been induced to increase our facilities for procuring scientific information, and to make large and expensive arrangements for the publication of the next volume, which we hope that all who are friendly to the progression of Science and Mechanical improvement will assist us in carrying out.

As an evidence that we have given satisfaction to our readers during the past year (aside from the fact that our circulation has increased three-fold within that time,) and that our worthy contemporaries appreciate our efforts in the advancement of useful science, we would state that not less than three hundred of our valuable exchanges have kindly volunteered to publish at length our prospectus for the ensuing volume, among which are many of the leading dailies of our principal cities

To the publishers of the Mechanics' Magazine and Patent Journal of London, England, and the publishers of the Practical Mechanic and Engineers' Magazine of Glasgow, Scotland, we would tender our most sincere thanks for the kindness they have manifested towards us in various ways, and particularly for the valuable scientific works which we have received from them during the past year.

We would also express our obligations to our contemporaries in this country for the many favors they have bestowed on us since the commencement of this volume, in publishing our prospectus, giving us flattering notices, &c. &c., and in return we wish them all the success that their efforts in furnishing mental food merits, and a full three-fold increase of patronage. We are sorry to be obliged to cut off any of our exchanges at the end of this volume, but we find that our list is so large (above 400) and so many new ones coming in that have published our prospectus, with whom of course we are under obligations to exchange, that we shall be obliged to drop the acquaintance of many of our old friends to substitute new ones, unless they choose to remit one dollar to us, for which amount we will send the Scientific American another year.

Our agents, contemporaries, and readers.—We are obliged to you *all* for the courtesies rendered us in many ways during the past year, and if you will give us like encouragement for the coming one, we will promise not to relax our exertions in trying to please you. Adieu with Vol. 2. We hope to meet you all, however, next week, at the commencement of volume 3, and if you are disposed to bring your friends with you, we would inform you that we have room on our subscription books for "a few more" names yet.

MUNN & CO.

Sept. 17. Publishers Scientific American.

Where is the Fault .

We have frequent complaints from our correspondents that they are compelled to pay the postage on letters from us which have the U. S. stamp securely pasted on the letter Do they omit to stamp them paid at the New York Office, or are there some country Postmasters Who do not understand the use of the U. S. stamps yet? There is a screw loose somewhere.

Portable Gas Light.

We perceive that Mr. Hall, of Pennsylvania, is in Mississippi, selling the patent right for the portable gas apparatus, which we noticed some time since in the Scientific American. There was an exhibition of it lately at Vicksburg, in one of the churches, and it seems the audience were delighted with its brilliant flame.

Steam on the Schuylkill Canal.

It is the intention of Mr. E. W. Earl, of Reading, to establish, early next spring, a line of steamers on the Schuylkill Canal, to run between Reading and Philadelphia.

On Wednesday of last week, says the Amherst Express, there were mowing in the same field in Wendall, four generations of a family named Wilder, consisting of a great grandfather, grandfather, father and son. The oldest was ninety-six and the youngest ten years of age

Smith's Improved Electric Machines.

Another important improvement has been made in the above machines, which renders them vastly superior to any before offered to the public. See advertisement in another column.

Likeness of Gen. Taylor

The first edition of this beautiful portrait having been entirely exhausted, we would inform the public that we have just issued another edition, on finer paper, which we are selling at former prices. See advertisement.

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Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

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☞ THIS paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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WOOD CUTS.

☞ We would inform Newspaper and Periodical publishers that we have on hand a large lot of Wood Engravings, which have been used in the Scientific American during the past year, which we are desirous of disposing of CHEAP. They are in fine order and may be had at one fourth of their original cost. Publishers of country papers would find it to their interest to avail themselves of this chance to illustrate their publications at a cheap rate.

Address at this Office. s18 tf

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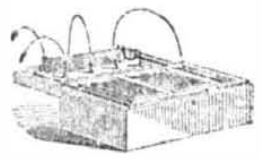
SMITH'S Improved Electric Machines.



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We therefore respectfully invite and solicit mechanics, manufacturers, and artists throughout the Union, to contribute specimens in every department of labor or skill; articles of wood, stone, metal, or any other material. The products of the loom in silk, cotton, wool, hemp, flax or hair; the creation of female industry and taste; and in fine any production, made of whatever material, which can in any way minister to the comfort or improvement of society.

And we hereby offer a premium of One Hundred and Fifty Dollars to the inventor of such machine, implement or scientific discovery, as shall be deemed by the Judges most important to the well being of mankind. Also, a premium of One Hundred Dollars for such machine, &c, as shall be considered SECOND in importance; and one of Fifty Dollars for that which shall stand THIRD in this respect. It being understood that such machine or implement, and, if practicable, such scientific discovery, shall form part of the present exhibition.

MEDALS (of gold or silver) or honorary Diplomas, will be awarded, as the articles exhibited may deserve; and the managers pledge themselves that the strictest impartiality shall be observed in their distribution.

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The Freight of all articles, machinery, &c. which may be sent for the exhibition over the various railroads, connecting with the city, will, if such articles, &c., are accepted and actually exhibited, be refunded by the Association.

All who may wish to present machines, models or goods for premium or exhibition, are requested to address Mr. JOHN KUHN, Secretary of the Association, City Building, 22 Court Square, Boston, (post paid,) which will meet with immediate attention—The Secretary will also furnish, on application, gratis, copies of our GENERAL CIRCULAR, containing the Rules and Regulations of the exhibition.

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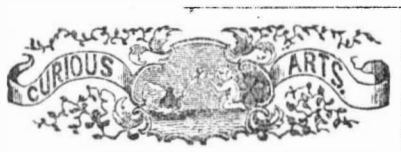


Electrotypic Process for Fitting Artificial Teeth.

It has always been a desideratum with dentists to obtain a perfect model of the mouth, which certainly is not possible by the ordinary mode adopted. The usual plan is to obtain a cast in plaster of Paris from the wax impression of the mouth, which cast serves for a pattern for moulding in sand and clay in order to obtain a metallic cast. The errors resulting from this are manifold; in the first place, plaster of Paris is well known to swell in solidifying; this action forces it into all the crevices, when the mould is sufficiently consistent, but the soft nature of the wax (which is still further softened by the evolution of a small degree of heat accompanying the solidification of the plaster) allows it partially to yield to the swelling of the plaster so that the resulting cast is rather larger than the mouth intended to be represented. In order to remedy this great objection, dentists are in the habit of scraping the cast by way of reducing it to the proper size, a proceeding which must produce error even when performed with the greatest nicety, and afterwards the metallic cast always requires dressing or repairing, which is another source of error. Mr. Lewellin of the city of Glasgow, by depositing copper by the galvanic agency on the wax impression, obtains at once a perfect metallic cast, from which a most accurate copy of the gums, &c. may be struck in gold plate in the usual manner.

We have here a beautifully ingenious adaptation of the electrotype to a purpose, where this most faithful copyist proves its value most efficiently. The manipulatory art of the most skilful dentist when placed in competition with the electrotype, shows to a decided ad-advantage, as without considering the extreme nicety of the operation, and the length of time required in the former case, the fitting of the plate can never be even approximately accurate, whilst by Mr. Lewellin's invention, the greatest exactitude is rendered imperative by the very nature of the application.

How to Make Laughing Gas.

There are various methods of procuring this gas, but we think our readers will find it best to obtain it from nitrate of ammonia. This should be placed in a glass retort, and exposed to the flame of a spirit lamp. It will soon melt and the gas will be evolved. It should be collected in a receiver, placed in a pneumatic trough, and allowed to stand a short time over water, in order to remove any impurities with which it may be contaminated. The nitrate of ammonia, when melted, should only be kept simmering; for if the heat be increased too much, it will cause a slight explosion, and nitric oxide and nitrogen gas will be produced. If it be wished to make a considerable quantity of gas, it will be advisable, on the ground of cheapness, for the operator to prepare the nitrate of ammonia himself. This may be done by pouring diluted nitric acid on carbonate of ammonia, and evaporating the solution till the greater portion of the water is gone.

Transparency of Gold.

All opaque substances might become transparent if they were made sufficiently thin; and what it is in the constitution of one mass as compared with another, which fits the former to transmit light, and the latter to obstruct it, cannot clearly be explained; but we perceive that the arrangement of the particles has more influence than their peculiar nature. Nothing is more opaque than thick masses of the metals; but nothing is more transparent than equally thick masses of the same metals in solution, nor than the glasses, of which a metal forms a large proportion. The thousand salts formed by the union of the metals, or earths, with the diluted acids, are all transparent when, in cooling from the fluid to the solid state, their particles have been allowed to arrange themselves according to their mutual attraction—that is to say, to form crystals; but the same substances in other states, as when reduced to powder, are opaque. Even the metals themselves when reduced to leaves of great thinness, are transparent as may be perceived by looking at a lamp through a fine gold leaf. The light will be visible, but the flame will appear of a greenish hue.

Lighting by Electricity.

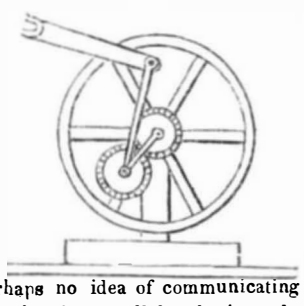
A Mr. Staite has secured a patent in London for rendering light available by electricity, a subject to which we have frequently directed attention through our columns. Mr. Staite has constructed an electric lamp and has produced a powerful volume of light from a battery of very small power. Amongst several applications which he contemplates, may be mentioned one, viz. telegraphing by means of flashes of light through colored media. With four sets of electrodes, for example, placed in glasses, colored white, red, green and blue, the whole alphabet, with the numerals, are indicated by a very simple code of signals, and with astonishing rapidity. The key-board of the telegraph is so arranged that each key in the series is colored white, red, green and blue; and when either key is pressed down, it completes the circuit, with that particular electrode, at the distant station which exhibits the same colored flash. There may be any number of keys, and one to strike a bell at the conclusion of each word, or for the ordinary purposes of drawing attention, &c. For night signals on railways, Mr. S. proposes to have fixed, at required distances from the stations, a signal post, on which two or more lamps may be fixed—say, one enclosed in a red glass, one in green, and one in white. The battery wires are so arranged, that whichever lamp is required to show a light, the attendant at the station completes the circuit accordingly, and vice versa. The red light may indicate "danger," the green light "caution," and so on. These lights may be shown at any distance *from* the stations, and be under the perfect control, at the same time, of the attendants *at* the station, a system calculated to be of great service in preventing accidents at night, especially in dark or foggy weather. Mr. S, uses the self-sustaining percolating battery of Messrs. Brett and Little, Americans

Mechanics among the Ancients.

The town of Pompeii was supplied with water by means of pipes of iron, lead and of baked clay. The museum of the dug-out city contains a bronze cock, of a large size, which has two communicating pipes. The splashing of water, which has been so long hermetically sealed, can now be heard in it. It is proved both by the fountains and fresco-painting, that the Pompeiians were acquainted with that law of water, which causes a fluid flowing in a pipe to ascend to the level of its source. It has always been gravely asserted that this property was not known to them, or it is presumed they would not have carried their aqueducts over such stupendous arches of masonry. Perhaps in some of these cases, there may have been labor lost, but they must have known well the impossibility of making masonry to resist the hydrostatic pressure where there was a great head of water.

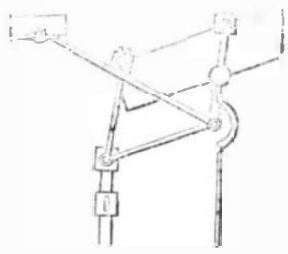
MECHANICAL MOVEMENTS.

Circular and Traverse Motion.



Perhaps no idea of communicating circular motion by parallel or horizontal strokes could have entered the mind of man, like the application of the simple crank for that purpose. In the above cut we have a representation of a shaft and crank propelling a wheel. By the wheel most of our spinning is performed, and by the old plan the crank with the foot lathe was the means employed to guide the spindle. Here is a machine, however, which by the crank not only communicates motion to the wheel, but it will be seen that by the toothed wheels connected together on the wheel, we have three different movements—one by the crank, the others by the large wheel and small wheel on its axle and the small toothed wheel running different from the others. Thus speed and a variety of motions can be communicated from one prime mover by the peculiar arrangement of the machinery.

Parallel Motion.



It is said that the inventor of the steam engine when he first saw the walking beam and crank working like a thing of life, was astonished, surprised, and could scarcely speak—he had no idea of such beauty of motion from the beam, cylinder crank and connecting rod. We have here a skeleton sketch of a beam and connecting rods, the same as were used in the primitive engines. As the beam moves up and down, its end moves in the arc of a circle, yet from the arrangement of the shacklebars and couplings there is very little strain upon the cylinder from the piston, and while one end of the beam is moving up and down by the upright motion of the piston the other end by the crank is spinning round a wheel to drive the factory or propel a steamboat.

Remedy for Cramp.

A writer in the Medical Times asserts that he has discovered in the following simple process an effectual remedy for this distressing and frequent complaint, to which he had himself been for many years a martyr. His plan is to sleep upon an inclined plane, which is effected by taking care that the bed or mattrass should incline at least twelve inches from the upper to the lower portions of the bed; and for this purpose either the lower feet may be cut down to the requisite inclination, or the inclined plane may be made by an arangement of mattrasses, or by removing the feathers from the lower end of the bed. The writer was led to adopt this plan by observing that while sleeping in a chair, with his lower limbs nearly touching the floor, he never in that position, was disturbed by cramp.

Successful Surgical Operation.

The Manchester N. H. American states that a physician of that place a short time since opened the stomach of a patient, and removed several hard lumps which had completely obstructed the passage from it. However singular this may seem, it is nevertheless true.—The patient, is doing well, and will undoubtedly recover. The operation was performed in the presence of several gentlemen and occupied from ten to fifteen minutes.

Squaring the Circle.

Sir.—From numerous experiments, which I have lately tried, I believe the following to be the true proportion between the diameter and circumference of a circle. If the diameter be 1, the circumference will be 3,0625, and the area 765625; the side of an equal square 875. Or, if the diameter be 16, the circumference will be 49, and the side of an equal square 14. J. H.

Distance of the Earth from the Sun.

Taking the semi-major axis of the earth's orbit to be 96,000,000 miles, in the year 1847, the greatest distance of the earth from the sun will be 96,590,000 miles, and its least distance 93,408,000 miles. The greatest distance will be on July 3, 22h. 39m. astronomic time; or civil time, on July 4, at 10h. 39m A.M., Greenwich mean time; and at the least distance will be, on December 30, 22h. 27m. astronomic time; or civil time, December 31, at 10h. 27m. A.M. The mean elongation of the earth from the sun took place on the forenoon of April 2, civil time, and will again take place on the forenoon of October 2, civil time.

A Varmounter has obtained a patent for a pocket telescope that will bring cows trespassing in his cornfield so near, that he can shoot them with a pocket pistol

RECEIPTS.

Plating Composition.

Dissolve 3 ounces of tin in 3 lbs. of muriatic acid, add half an ounce of ammonia and 1 ounce of sperm tallow.

Japanning Liquid.

One pint of alcohol, 3 ounces gum sandarac and 2 ounces gum mastic. Dissolve india rubber in ammonia or turpentine and mix with the above to a good thickness. To color this liquid use for blue, Prussian blue, and for black, ivory black. S. W.

Preparation of Iron, &c. for Fine Gilding.

Amalgamation of wrought-iron, cast-iron and steel, to prepare them for fine gilding is thus effected:—Place in a glazed earthenware or porcelain vessel, 12 parts, by weight, of mercury, 1 of zinc, 2 of sulphate of iron, 12 of water, and 1½ of hydrochloric acid, of 1·2 specific gravity; then introduce the iron, or steel, into the mixture, which is to be heated to ebullition. In a little time the objects become covered with a thin coating of mercury, which enables us to apply immediately the amalgam of gold used in the gilding. All now necessary is to apply a strong heat, which will drive off the mercury, and the trace of zinc that may have attached itself to the iron, leaving a surface of pure gold. By the ordinary way, it becomes necessary to cover the iron first with a coat of copper.

Freezing Mixture.

Mix sixteen parts of water with five of nitre, and five of salammoniac, in fine powder, when the temperature will fall about 40 degrees below the freezing point. This experiment can be conveniently performed at any time.

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